UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,488	10/29/2003	Bernard Cuenoud	4-20890C	7737

1095 7590 10/03/2007

NOVARTIS
CORPORATE INTELLECTUAL PROPERTY
ONE HEALTH PLAZA 104/3
EAST HANOVER, NJ 07936-1080

EXAMINER	
ANGELL, JON E	
ART UNIT	**PAPER NUMBER**
1635	

MAIL DATE	DELIVERY MODE
10/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/696,488	CUENOUD ET AL.	
	Examiner	Art Unit	
	J. Eric Angell	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2007*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-58* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-58 are currently pending and are addressed herein.

This Action is in response to the communication filed on 7/12/07.

Applicants' response filed 7/12/07 is acknowledged and has been entered. However, upon further consideration, the application comprises claims drawn to multiple patentable distinct inventions not previously set forth. Accordingly, the previous restriction requirement is withdrawn.

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-39, 48-51, 54-58, drawn to an oligonucleotide derivative, classified in class 536, subclass 23.1.

   II. Claim 40, drawn to a process for preparing the compound of formula Ia, classified in class 536, subclass 25.3.

   III. Claim 41, drawn to a process for preparing an oligonucleotide derivative according to claim 1, classified in class 536, subclass 25.3.

   IV. Claim 42, drawn to a method of using the compound of formula Ia as a nucleoside building block, classified in class 536, subclass 25.3.

   V. Claims 43-47, 52, 53, drawn to a method of using the oligonucleotide derivative of claim 1 as an antisense oligonucleotide or triplex-forming oligonucleotide and therapeutic treatment, classified in class 514, subclass 44.

Additionally, a further group restriction is required under 35 U.S.C. 121. All of the indicated Groups encompass the compound of claim 1 or 24; however, claims 1 and 24 contain

improper Markush Groups that are not compliant with *In re Harnisch* and thus form paragraph *M.P.E.P. 8.01 Election of Species* does not apply. Applicant is required to elect a single disclosed molecular composition of the radical "A" recited specifically in Claim(s) 1, 2, 10, 24, 25, and 33 for prosecution on the merits to which the claims shall be restricted. Therefore, election is required of one of inventive groups (a)-(c) below (see Claim 1 for example), wherein in "A" is a radical, specifically:

a) $-C(H)(R_3)-N(R_1)(R_2)$,

b) a radical of formula (IVa), or

c) a radical of formula (IVb).

Inventive groups (a)-(c) are distinct because they are unrelated. The (A) radicals are distinctly different in structure, as illustrated by the numerous variations of heteroatoms, linear and branched carbon chains, and monocyclic heteroatom groups. Furthermore, these unrelated structures are not obvious variations of each other because one skilled in the art does not expect aromatic ring systems to have the same chemical properties as non-aromatic ring systems, such as affecting bioavailability, toxicity or bioactivity of the compound. A reference rendering a compound of group (c) as anticipated or obvious over the prior art would not necessarily also render the compound of formula IVb as anticipated or obvious over the prior art.

Because these inventions are distinct for reasons given above, and because a search of one radical formula structure does not necessarily overlap with that of another radical formula structure, it would be unduly burdensome for the examiner to search and examine all the subject matter being sought in the presently pending claims and thus, restriction for examination purposes as indicated.

The inventions I-V are distinct, each from the other because of the following reasons:

2. Invention I is related to Invention III as product and process of making the product. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as

claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by another and materially different process. For instance, the oliogonucleotide derivative can be chemically synthesized by another chemical process. For instance, any one of a number of different intermediate compounds encompassed by formula Ia could be used to produce the oligonucleotide derivative of claim.

3. Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are unrelated because they are not disclosed as capable of use together and they have different designs, modes of operation, and effects as the method of making the oligonucleotide derivative of claim 1 and the method of preparing the compound of formula Ia are two different methods with different starting materials and different desired results.

Inventions I and II are directed to an unrelated product and process. Product and process inventions are unrelated if it can be shown that the product cannot be used in, or made by, the process. See MPEP § 802.01 and § 806.06. In the instant case, the method of II is for preparing the compound of formula Ia while the product of I is drawn to an oligonucleotide derivative. Accordingly, the product is not used in, or made by, the process of II.

4. Invention I is related to Inventions IV-V as product and processes of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case product as claimed can be used in a materially different process

of using that product. For instance the product of I can be used in any of the processes of IV-VII. For instance, the product can be used in a therapeutic treatment of disease or in a hybridization assay where the oligonucleotide hybridizes to a complementary nucleic acid sequence in a sample. Alternatively, the oligonucleotide could be administered to an animal to produce polyclonal antibodies which specifically bind to the oligonucleotide sequence.

5. Inventions IV-V are directed to related processes. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed are not capable of use together or can have a materially different design, mode of operation, function, or effect as methods of using a compound as a building block, antisense methods/triplex-forming oligonucleotide methods/therapeutic methods are designed differently and have different operation/function/effect . Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

6. Inventions II and III are unrelated to Inventions IV and V. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are not disclosed as capable of use together and they have different designs, modes of operation, and effects as methods of preparing the compound of formula Ia, preparing an oligonucleotide derivative according to claim 1, using the compound of formula Ia as a nucleoside building block, and using the oligonucleotide derivative of claim 1 as an antisense

oligonucleotide or triplex-forming oligonucleotide for therapeutic treatment have different designs, modes of operation and effects.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed molecular composition of the radical "A", even though this requirement is traversed. Failure to elect a molecular composition of the radical "A" consonant with Applicant's elected Invention, may result in a notice of non-responsive amendment.

3. **Upon election of any of the inventive groups (a)-(c) from above, a species election is required under 35 USC 121.** Currently, Claims 1, 10, 24, 25, 33, 40 and 56 of this application are directed to a plurality of disclosed, patentably distinct radical species that prohibit proper examination of these claims. Therefore, for each symbolic radical below (i-xiii), election is required under 35 U.S.C. 121 of:

i) one (R_1) and (R_2) radical from the list consisting of the radicals recited in Claims 1-7 and 24-30,

ii) one (R_3) radical from the list consisting of the radicals recited in Claims 1, 8, 10, 24, 31 and 33,

iii) one (R_4) radical and from the list consisting of the radicals recited in Claims 1, 8, 24, 31 and 40,

iv) one (R_5) and (R_6) radical from the list consisting of the (R_5) radicals recited in Claims 1-3 and 24-26,

v) one (R) radical of Formula IVa from the list consisting of the radicals recited in Claims 1 and 24,

vi) one (R) radical of Formula IVb from the list consisting of the radicals recited in Claims 1 and 24,

vii) one (X) radical of Formula II from the list consisting of the (X) radicals recited in Claims 1 and 24-26,

viii) one (X) radical of Formula B and one (X) radical of Formula C from the list consisting of the (X) radicals recited in Claim 40,

ix) one (Y) radical of Formula III from the list consisting of the (Y) radicals recited in Claims 1 and 24,

x) wherein the (V) radical is the species of an internucleosidic bridging moiety and one (V) radical is a moiety from the list consisting of the bridging groups recited in Claim 15-18 or the (V) radical is the species of a terminal radical moiety and one (V) terminal radical is a moiety from the list consisting of the terminal radicals recited in Claim 19-20,

xi) wherein the (W) radical is the species of an internucleosidic bridging moiety and one (W) radical is a moiety from the list consisting of the bridging groups recited in Claim 15-18 or the (W) radical is the species of a terminal radical moiety and one (W) terminal radical is a moiety from the list consisting of the terminal radicals recited in Claim 19-20,

xii) one (R_8) radical from the respective list consisting of the (R_8) radicals recited in Claim 15, and

xiii) one (Va) and (Wa) trityl-type protecting group from the list consisting of the protecting groups recited in Claim 39.

Therefore, election is required under 35 U.S.C. 121 of one species type from the respective lists (i-xvii) above consonant with Applicant's elected invention for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

The numerous variations in the number, position and type of heteroatoms, ring structures, and linear or branched carbon chains result in a vast genus of structurally unrelated molecules that are not obvious variations of each other because one skilled in the art does not expect aromatic ring systems to have the same chemical properties as non-aromatic ring systems. Each of the radical species moieties confers a unique, non-obvious property onto the modified nucleoside derivative that will directly impact the bioavailability, toxicity or bioactivity of the compound. Given the breadth of the claimed, unrelated structures, a search for all possible species at each of the recited radical groups imposes an exceptional burden on the Office. Because these inventions are distinct for reasons given above, and because a search of one does not necessarily overlap with that of another species, it would be unduly burdensome for the examiner to search and examine all the subject matter being sought in the presently pending claims and thus, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention.**

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Furthermore, in order to aid in searching the elected invention, Applicants are asked to provide the structure of the elected compound and, if possible, provide the name of the elected molecule.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the

currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Eric Angell whose telephone number is 571-272-0756. The examiner can normally be reached on Monday-Thursday 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Douglas Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. E. Angell/
Primary Examiner
Art Unit 1635